

#69

PATENTS  
01783/102**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Inventors: Sherie L. Morrison  
Leonard A. Herzenberg  
Vernon T. Oi

Assignees: The Trustees of Columbia University in the City of New York  
The Board of Trustees of the Leland Stanford Junior University

Patent No.: 5,807,715

Issued: September 15, 1998

Application No.: 08/266,154

Filed: June 27, 1994

For: METHODS AND TRANSFORMED MAMMALIAN LYMPHOCYTIC CELLS FOR PRODUCING FUNCTIONAL ANTIGEN-BINDING PROTEIN INCLUDING CHIMERIC IMMUNOGLOBULIN AND FRAGMENTS

Hon. Commissioner for Patents  
Washington, D.C. 20231

**PETITION UNDER 37 C.F.R. 1.182 FOR ISSUANCE  
OF A CORRECTED PATENT**

The Trustees of Columbia University in the City of New York ("Columbia University") and The Board of Trustees of the Leland Stanford Junior University ("Stanford University"), collectively the "Patent Owners," hereby petition under 37 C.F.R. § 1.182, and in accordance with 37 C.F.R. § 1.322(b), for the issuance of a corrected original ribbon grant of the above-referenced patent and a corrected electronic copy of the patent. A copy of the patent as originally issued is attached hereto at Tab 1.

**RECEIVED**

JAN 24 2003

**OFFICE OF PETITIONS**

On June 25, 1999, the Patent Owners submitted a Request Under 37 C.F.R. § 1.322 and § 1.323 For Issuance of Corrected Copy of Patent (“Correction Request”) to the Certificate of Correction Branch, copy attached hereto at Tab 2. A review of the Correction Request demonstrates that there were numerous printing errors in the patent as issued. Three of the errors, namely two errors in the title of the patent and an error in failing to list one of the Patent Owners as an assignee of the patent, were believed to be of such import that the Patent Owners requested the issuance of a corrected original ribbon grant of the patent. Indeed, recent discussions with employees of the United States Patent and Trademark Office (“PTO”) confirmed the Patent Owners’ belief that where, as here, errors in the critical title and assignee fields are PTO errors, these errors warrant the issuance of a new ribbon grant. While a Certificate of Correction for the patent has been issued pursuant to the Correction Request, the Patent Owners believe that the circumstances set forth below warrant the issuance of a corrected original ribbon grant of the patent.

The Correction Request filed by the Patent Owners remained pending with the PTO for over three years before a Certificate of Correction issued on July 9, 2002, copy attached at Tab 3. However, the July 9, 2002 Certificate of Correction also failed to correct the assignee omission even though that error was included in the Correction Request. A subsequent Certificate of Correction listing both the Patent Owners as assignees was issued by the PTO on August 6, 2002, copy attached at Tab 4.

The patent has been the subject of licensing and the Patent Owner administering the licensing is the owner whose name was omitted from the patent, namely Columbia University. The omission of Columbia University from the face of the patent causes confusion among potential licensees, and indeed, potential licensees will not know that Columbia

University is an owner of the patent unless the second Certificate of Correction is accessed. Moreover, the patent is currently involved in litigation and the Patent Owners desire to use a corrected patent in litigation rather than the erroneous patent and two separate Certificates of Correction.

In light of (i) the critical nature of the title and assignee fields in which errors were made by the PTO, (ii) the additional PTO error in the original Certificate of Correction which resulted in the issuance of a second separate Certificate of Correction, and (iii) the inconvenience caused to the Patent Owners in their licensing efforts and in litigation because of the title and assignee errors, the Patent Owners respectfully request the issuance of a corrected original ribbon grant of the patent and a corrected electronic copy of the patent.

Moreover, in the event this request is granted, the Patent Owners respectfully request that the assignee field of the new copy of the patent recite the full name of assignee Columbia University, i.e., "The Trustees of Columbia University" should be replaced with "The Trustees of Columbia University in the City of New York." As may be seen from the assignments attached at Tab 5, each inventor assigned his or her entire right, title and interest in the invention claimed by the patent to either Stanford University or Columbia University. As may be seen from the Notices of Recordation, attached hereto at Tab 6, these assignments were properly recorded with the PTO. However, as can be seen from the Issue Fee Transmittal, copy attached hereto at Tab 7, the Issue Fee Transmittal incorrectly abbreviated the full name of "The Trustees of Columbia University in the City of New York," as appears in the Notices of Recordation, to "The Trustees of Columbia University." Therefore, the Patent Owners respectfully request that if this petition for the issuance of a corrected patent is granted, the

assignee field of the corrected patent be amended to recite the complete name of Columbia University, namely "The Trustees of Columbia University in the City of New York."

In the event this request is granted, the Patent Owners are prepared to surrender the original ribbon grant of the patent and pay any additional fees deemed appropriate, including a new issue fee or new publication fee.

The Director is hereby authorized to charge \$130.00 to cover the petition fee set forth in 37 C.F.R. § 1.17(h) and any additional fees that may be due in connection with this paper, including a new issue fee or new publication fee, to Deposit Account No. 50-0324. A duplicate copy of this Petition is enclosed herewith.

DEPARTMENT OF COMMERCE

**Certificate of Mailing**

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to:

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Washington, D.C. 20231

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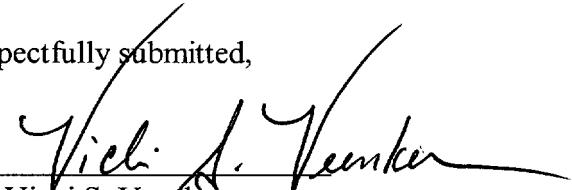
Matthew T. Byrne

Signature:

Matthew T. Byrne

Respectfully submitted,

By:

  
Vicki S. Veenker  
Registration No. 34,269  
Attorney for Assignees

SHEARMAN & STERLING  
1080 Marsh Road  
Menlo Park, CA 94025  
(650) 838-3600

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c



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patentees : Sherie L. Morrison  
Leonard A. Herzenberg  
Vernon T. Oi

Patent No. : 5,807,715

Issued : September 15, 1998

On Application Serial No. : 08/266,154

For : METHODS AND TRANSFORMED MAMMALIAN LYMPHOCYTIC CELLS FOR PRODUCING FUNCTIONAL ANTIGEN-BINDING PROTEIN INCLUDING CHIMERIC IMMUNOGLOBULIN AND FRAGMENTS

Group Art Unit : 1642

Examiner : Julie E. Reeves, Ph.D.

Hon. Asst. Commissioner for Patents  
Attn: Certificate of Correction Branch  
Washington, D.C. 20231

REQUEST UNDER 37 C.F.R. § 1.322 AND § 1.323  
FOR ISSUANCE OF CORRECTED COPY OF PATENT

Sir:

Enclosed are 8 sheets (in duplicate) of Form PTO-1050 listing corrected printing errors that have been found in the above-identified patent. None of the corrections add new matter.

Two of the listed errors, believed to be the responsibility of the Patent and Trademark Office, are of such import that the patentees and their assignees respectfully request that in lieu of a certificate of correction, the Patent and Trademark Office issue a corrected original ribbon grant of the patent, and a **RECEIVED** corrected electronic copy of the patent.

JAN 24 2003

OFFICE OF PETITIONS

First, one assignee, The Trustees of Columbia University, New York, New York was omitted. Both assignees, The Board of Trustees of The Leland Stanford Junior University and The Trustees of Columbia University, were listed in Part B-Issue Fee Transmittal (and attached sheet), copies of which are attached as Exhibit A. Also attached, as Exhibit B, is the Notice of Recordation of Assignment Document listing Columbia University as an assignee.

Second, the title as printed on the issued patent is in error. The correct title is:

METHODS AND TRANSFORMED MAMMALIAN LYMPHOCYTIC  
CELLS FOR PRODUCING FUNCTIONAL ANTIGEN-BINDING  
PROTEIN INCLUDING CHIMERIC IMMUNOGLOBULIN AND  
FRAGMENTS,

as amended in the Second Amendment After Allowance Pursuant to 37 C.F.R. § 1.312(a), filed May 18, 1998, and entered by the Examiner on May 22, 1998. Copies of the Amendment and the Examiner's Response to Rule 312 Communication are attached as Exhibit C and D, respectively.

The two errors described above are those that motivate the present request for issuance of a new patent. Form PTO-1050 lists additional corrections, most of which report clear typographical errors. However, two corrections are requested in the claims, meriting additional discussion.

First, claim 41, as corrected, would depend from claim 37, rather than claim 39. Applicants believe that this correction is necessitated by incorrect renumbering by the Patent and Trademark Office of amended claim 136, filed in the Second Amendment After Allowance.

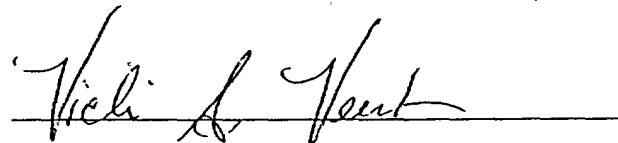
Second, the requested deletion of two separate uses of the word "are" in each of claims 41 and 42 corrects grammatical difficulties present in the claims as issued,

and does not add new matter or change the scope of the claims.

Some of the corrected errors were made by the applicants. Accordingly, enclosed herewith is a check for \$100.00 in payment of the fee set forth in 37 C.F.R. § 1.20(a). We also request 15 printed copies of the patent, if the corrected patent is issued; a check in the amount of \$45.00 to cover the cost of the copies is enclosed. The Commissioner is hereby authorized to charge any additional fees due, or credit any overpayment, in connection with these respective Requests to Deposit Account No. 06-1075. A duplicate copy of this Request for Issuance of Corrected Copy of Patent is enclosed herewith.

If any questions arise from the foregoing, the Applicants invite an inquiry to the undersigned by telephone at (650) 617-4011.

Respectfully submitted,

  
\_\_\_\_\_  
Vicki S. Veenker  
Registration No. 34,269  
Attorney for Patentees

c/o FISH & NEAVE  
1251 Avenue of the Americas  
New York, New York 10020  
(650) 617-4000

Attachments:

I hereby Certify that this Correspondence is being Deposited with the U.S. Postal Service as First Class Mail in an Envelope Addressed to: ASSISTANT COMMISSIONER FOR PATENTS WASHINGTON, D.C. 20231, ON

June 25, 1999

MARSHAL JOHNSON



Signature of Person Signing

Exhibit A  
Part B-Issue Fee Transmittal, Form PTOL-85B, and attached sheet, applic. ser. no. 08/266,154

Exhibit B  
Notice of Recordation of Assignment Document, applic. ser. no. 07/090,669

Attachments (cont.):

- Exhibit C  
Pages 1 - 8 of Second Amendment After Allowance,  
May 18, 1998, applic. ser. no. 08/266,154
- Exhibit D  
Response to Rule 312 Communication entering Second  
Amendment After Allowance, applic. ser.  
no. 08/266,154

Enclosures:

- PTO-1050 (8 sheets, in duplicate)
- Check in the amount of \$100.00, for providing a  
certificate of correction under 37.C.F.R. § 1.323.
- Check in the amount of \$45.00, to cover the fee  
for 15 printed copies of the corrected patent.

100-900000-000000000000

**EXHIBIT A**

Part B-Issue Fee Transmittal, Form PTOL-85B,  
and attached sheet, applic. ser. no. 08/266,154.

**PART B—ISSUE FEE TRANSMITTAL**

Complete and mail this form, together with applicable fees, to: Box ISSUE FEE  
Assistant Commissioner for Patents  
Washington, D.C. 20231.

**MAILING INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE. Blocks 1 through 4 should be completed where appropriate. All further correspondence including the Issue Fee Receipt, the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

VICKI S VEENKER  
FISH & NEAVE  
1251 AVENUE OF THE AMERICAS  
NEW YORK NY 10020

H131/0218

Note: The certificate of mailing below can only be used for domestic mailings of the Issue Fee Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing.

**Certificate of Mailing**

I hereby certify that this Issue Fee Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Box Issue Fee address above on the date indicated below.

MARTHA D JOHNSON (Depositor's name)  
MULLIGAN (Signature)  
MAY 18, 1998 (Date)

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
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First Name U87266, 154	06/27/94	050	REEVES, J	1642	02/18/98
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Applicant

TITLE OF INVENTION	MORRISON, SHERIE L.
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METHODS FOR PRODUCING FUNCTIONAL IMMUNOGLOBIN, INCLUDING CHIMERIC IMMUNOGLOBIN, IN TRANSFORMED MAMMALIAN LYMPHOCYTIC CELLS (AS AMENDED)

ATTY'S DOCKET NO. -	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEES DUE	DATE DUE
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1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). Use of PTO Form(s) and Customer Number are recommended, but not required.	2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
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3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)  
PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the PTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE\* The Board of Trustees of  
The Leland Stanford Junior University

(B) RESIDENCE (CITY & STATE OR COUNTRY)

Stanford, California

Please check the appropriate assignee category indicated below (will not be printed on the patent)

individual  corporation or other private group entity  government

4a. The following fees are enclosed (make check payable to Commissioner of Patents and Trademarks):

Issue Fee  
 Advance Order - # of Copies 15

4b. The following fees or deficiency in these fees should be charged to:

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(ENCLOSE AN EXTRA COPY OF THIS FORM)

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 Advance Order - # of Copies

The COMMISSIONER OF PATENTS AND TRADEMARKS IS requested to apply the Issue Fee to the application identified above.

(Authorized Signature)

*Vicki S. Veenker*

34,269

(Date)

5/18/98

NOTE: The Issue Fee will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the Patent and Trademark Office.

**Burden Hour Statement:** This form is estimated to take 0.2 hours to complete. Time will vary depending on the needs of the individual case. Any comments on the amount of time required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND FEES AND THIS FORM TO: Box Issue Fee, Assistant Commissioner for Patents, Washington D.C. 20231

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\*See attached sheet for -----

Additional Assignee Name and Residence Data to be Printed on the Patent

(A) Name of Assignee    The Trustees of Columbia University

(B) Residence: (City & State or Country)

New York, New York

Individual     Corporation or other private group entity     Government

**EXHIBIT B**

Notice of Recordation of Assignment Document,  
applic. ser. no. 07/090,669



UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office

ASSISTANT SECRETARY AND COMMISSIONER  
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STAN-62-1/24302

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AUG 15 1980

LEYDIG, VOIT & MAYER  
PALO ALTO

TO: LEYDIG, VOIT & MAYER  
350 CAMBRIDGE AVENUE  
SUITE 200  
PALO ALTO, CA 94306

UNITED STATES PATENT AND TRADEMARK OFFICE  
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF  
THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS  
AVAILABLE AT THE U.S. PATENT AND TRADEMARK OFFICE ON THE REEL AND FRAME  
NUMBER REFERENCED BELOW. A DIGEST OF THE DOCUMENT HAS ALSO BEEN MADE  
AND APPEARS IN THE OFFICE'S RECORDS AS SHOWN:

ASSIGNOR: 001 MORRISON, SHERIE L.

DOC DATE: 10/17/87

RECORDATION DATE: 11/16/87 NUMBER OF PAGES 002 REEL/FRAME 4830/0958

DIGEST: ASSIGNMENT OF ASSIGNORS INTEREST

ASSIGNEE: 501 TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK,  
THE, BROADWAY AND WEST 116TH STREET, NEW YORK, NEW YORK,  
10027, A CORP. OF NEW YORK

SERIAL NUMBER 7-090669 FILING DATE 08/28/87  
PATENT NUMBER ISSUE DATE 00/00/00

TITLE OF INVENTION: CHIMERIC RECEPTORS BY DNA SPLICING AND EXPRESSION

INVENTOR: 001 MORRISON, SHERIE L.

INVENTOR: 002 HERZENBERG, LEONARD A.

INVENTOR: 003 OI, VERNON T.

**EXHIBIT C**

Second Amendment After Allowance,  
May 18, 1998, applic. ser. no. 08/266,154

U.S. GOVERNMENT PRINTING OFFICE : 1998 50-130-001

BD1 CIP FWC IV

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Sherie L. Morrison et al.  
Serial No. : 08/266,154  
Filed : June 27, 1994  
For : METHODS FOR PRODUCING FUNCTIONAL  
IMMUNOGLOBULIN, INCLUDING CHIMERIC  
IMMUNOGLOBULIN, IN TRANSFORMED  
MAMMALIAN LYMPHOCYTIC CELLS  
Group Art Unit : 1806  
Examiner : Julie E. Reeves, Ph.D.  
Hon. Assistant Commissioner  
for Patents  
Washington, D.C. 20231

May 18, 1998

SECOND AMENDMENT AFTER ALLOWANCE  
PURSUANT TO 37 C.F.R. 1.312(a)

Sir:

Applicants request approval under Rule 312(a) for entry of the following  
amendment without withdrawing the case from issue.

IN THE TITLE

Please replace the current title with:

METHODS AND TRANSFORMED MAMMALIAN LYMPHOCYTIC CELLS FOR  
PRODUCING FUNCTIONAL ANTIGEN-BINDING PROTEIN INCLUDING  
CHIMERIC IMMUNOGLOBULIN AND FRAGMENTS

IN THE CLAIMS

Please amend claims 129-131 and 134-137 as follows:

129. A method as recited in claim 126 wherein [each] the first chain comprises a constant region.

130. A method as recited in claim 126 wherein the heavy and light chain variable domains are from [domain is found in] a first mammalian species and the heavy and light chain constant domains are from [domain is found in] a second mammalian species, said second mammalian species being other than the first mammalian species.

131. A method as recited in claim 129 wherein the heavy and light chain variable domains are from [domain is found in] a first mammalian species and the heavy and light chain constant regions are from [region is found in] a second mammalian species, said second mammalian species being other than the first mammalian species.

134. A method as recited in claim 132 wherein prior to step (a) the cell endogenously produces an immunoglobulin light chain or an immunoglobulin heavy chain, [which endogenously-produced heavy chain is not secreted in a form capable of specifically binding to antigen,] but not both.

135. A method as recited in claim 132 wherein [each] the first chain [has] comprises a constant region.

136. A method as recited in claim 132 wherein the antigen-binding protein [immunoglobulin] comprises the heavy and light chain variable domains are from [domain found in] a first mammalian species and comprises the heavy and light chain constant domains are from [domain found in] a second mammalian species, said second mammalian species being other than the first mammalian species.

137. A method as recited in claim 135 wherein the antigen-binding protein [immunoglobulin] comprises the heavy and light chain variable domains are from [domain found in] a first mammalian species and comprises the heavy and light chain constant regions are from [region found in] a second mammalian species, said second mammalian species being other than the first mammalian species.

Please add the following claims 138-157.

138. A method for producing a functional antigen-binding protein comprising

- i) a first chain comprising an immunoglobulin heavy chain variable domain and an immunoglobulin heavy chain constant domain and
- ii) a second chain comprising an immunoglobulin light chain variable domain and an immunoglobulin light chain constant domain,

wherein the method comprises the steps of:

(a) maintaining in a nutrient medium a transformed mammalian lymphocytic cell, said cell having been transfected with a first DNA molecule coding for the first chain of the protein and a second DNA molecule coding for the second chain of the protein;

PCT/US2007/035060  
1002

(b) expressing from said cell the first and second chains functionally assembled together to form said protein which is then secreted in a form capable of binding antigen; and

(c) recovering said antigen-binding protein,  
wherein prior to being transfected, the cell does not express a functional immunoglobulin capable of specifically binding antigen.

139. A method as recited in claim 138 wherein prior to step (a) the cell does not endogenously produce any immunoglobulin chains.

140. A method as recited in claim 138 wherein prior to step (a) the cell endogenously produces an immunoglobulin light chain or an immunoglobulin heavy chain, but not both.

141. A method as recited in claim 138 wherein the first chain comprises a constant region.

142. A method as recited in claim 138 wherein the heavy and light chain variable domains are from a first mammalian species and the heavy and light chain constant domains are from a second mammalian species, said second mammalian species being other than the first mammalian species.

143. A method as recited in claim 141 wherein the heavy and light chain variable domains are from a first mammalian species and the heavy and light chain constant regions are from a second mammalian species, said second mammalian species being other than the first mammalian species.

144. A transformed mammalian lymphocytic cell producing a functional antigen-binding protein comprising

i) a first chain comprising an immunoglobulin heavy chain variable domain and an immunoglobulin heavy chain constant domain and

ii) a second chain comprising an immunoglobulin light chain variable domain and an immunoglobulin light chain constant domain,

wherein the transformed mammalian lymphocytic cell comprises:

(a) a first exogenous DNA molecule coding for the first chain of the protein; and

(b) a second exogenous DNA molecule, said second DNA molecule coding for the second chain of the protein;

wherein without the exogenous DNA molecules the cell does not express a functional antigen-binding protein.

145. A transformed mammalian lymphocytic cell as recited in claim 144 wherein without the exogenous DNA molecules the cell does not endogenously produce any immunoglobulin chains.

146. A transformed mammalian lymphocytic cell as recited in claim 144 wherein without the exogenous DNA molecules the cell endogenously produces an immunoglobulin light chain or an immunoglobulin heavy chain, but not both.

147. A transformed mammalian lymphocytic cell as recited in claim 144 wherein the first chain comprises a constant region.

148. A transformed mammalian lymphocytic cell as recited in claim 144 wherein the heavy and light chain variable domains are from a first mammalian species and the heavy and light chain constant domains are from a second mammalian species, said second mammalian species being other than the first mammalian species.

149. A transformed mammalian lymphocytic cell as recited in claim 147 wherein the heavy and light chain variable domains are from a first mammalian species and the heavy and light chain constant regions are from a second mammalian species, said second mammalian species being other than the first mammalian species.

150. A transformed mammalian lymphocytic cell producing a functional antigen-binding protein comprising

i) a first chain comprising an immunoglobulin heavy chain variable domain and an immunoglobulin heavy chain constant domain and

ii) a second chain comprising an immunoglobulin light chain variable domain and an immunoglobulin light chain constant domain,

wherein the transformed mammalian lymphocytic cell comprises:

a plasmid comprising a first exogenous DNA molecule coding for the first chain of the protein and a second exogenous DNA molecule coding for the second chain of the protein; and

wherein without the exogenous DNA molecules the cell does not express a functional antigen-binding protein.

151. A transformed mammalian lymphocytic cell as recited in claim 150 wherein without the exogenous DNA molecules the cell does not endogenously produce any immunoglobulin chains.

152. A transformed mammalian lymphocytic cell as recited in claim 150 wherein without the exogenous DNA molecules the cell endogenously produces an immunoglobulin light chain or an immunoglobulin heavy chain, but not both.

153. A transformed mammalian lymphocytic cell as recited in claim 150  
wherein the first chain comprises a constant region.

154. A transformed mammalian lymphocytic cell as recited in claim 150  
wherein the heavy and light chain variable domains are from a first mammalian species and  
the heavy and light chain constant domains are from a second mammalian species, said  
second mammalian species being other than the first mammalian species.

155. A transformed mammalian lymphocytic cell as recited in claim 153  
wherein the heavy and light chain variable domains are from a first mammalian species and  
the heavy and light chain constant regions are from a second mammalian species, said  
second mammalian species being other than the first mammalian species.

156. A transformed mammalian lymphocytic cell produced by steps (a)  
and (b) of claim 126.

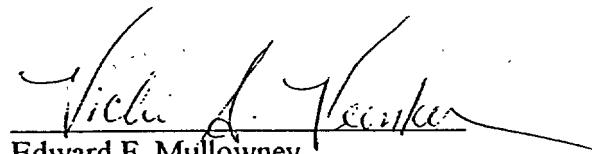
157. A transformed mammalian lymphocytic cell produced by step (a) of  
claim 132.

DEPARTMENT OF COMMERCE  
U.S. PATENT AND TRADEMARK OFFICE

REMARKS

Applicants believe claims 138-157 are fully supported by the specification and respectfully request their entry and allowance.

Respectfully submitted,



Edward F. Mullowney  
Registration No. 27,459  
Vicki S. Veenker  
Registration No. 34,269  
Attorney for Applicants

c/o FISH & NEAVE  
1251 Avenue of the Americas  
New York, New York 10020-1104  
Tel.: (212) 596-9000

CHASER ESTATE PLANNING

**EXHIBIT D**

Response to Rule 312 Communication entering  
Second Amendment After Allowance,  
applic. ser. no.08/266,154



## UNITED STATES DEPARTMENT OF COMMERCE

## Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/266,154 06/27/94 HARRISON

S 801C1PPW0111

EXAMINER

HM21/0531

REEVES, J

ART UNIT

PAPER NUMBER

1642

DATE MAILED:

06/22/98

VICKI S VEENKTER  
FISH & NEAVE  
1250 AVENUE OF THE AMERICAS  
NEW YORK NY 10020

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

RECEIVED

MAY 29 1998

FISH & NEAVE - PATENT DEPT.  
REFERRED TO JSV  
NOTED BY \_\_\_\_\_ORIG./COPY  
SENT TO  
CALIFORNIA  
BY A. Wilson

**Response to Rule 312  
Communication**

Application No. 08/266,154	Applicant(s) Morrison et al
Examiner Julie E. Reeves, Ph.D.	Group Art Unit 1642

The petition filed on \_\_\_\_\_ under 37 CFR 1.312(b) is granted. The paper has been forwarded to the examiner for consideration on the merits.

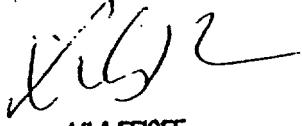
The amendment filed on May 18, 1998 under 37 CFR 1.312 has been considered, and has been:

entered.

entered as directed to matters of form not affecting the scope of the invention (Order 3311).

disapproved. See explanation below.

entered in part. See explanation below.

  
LILA FESEE

SUPERVISORY PATENT EXAMINER

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

(Also Form PTO-1050)

## UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO : 5,807,715

DATED : September 15, 1998

INVENTOR(S) : S.L. Morrison, Herzenberg, L.A., and Oi, V.T.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In the Title [54], delete "LYMPHOCYTE" and replace with --LYMPHOCYTIC--; after "IMMUNOGLOBULIN", add --AND FRAGMENTS--.

In the Inventors [75], delete "Scarsdale, N.Y." and replace with --Los Angeles--; delete "Menlo Park" and replace with --Mountain View--; delete "both" and replace with --all--.

In the Assignee [73], delete "Assignee" and replace with --Assignees--; after "Calif." add --, and The Trustees of Columbia University, New York, N.Y.--.

In References Cited [56], after "Seno et al 1983 Nucleic", delete "Acid" and replace with --Acids--; after "Research 11(3)", delete ";" and replace with --:--.

In References Cited [56], after "Dolby et al 1980 PNAS 77(10)" add --:--.

Column 1, line 2, delete "LYMPHOCYTE" and replace with --LYMPHOCYTIC--.

Column 1, line 5, after "IMMUNOGLOBULIN" add --AND FRAGMENTS--.

Column 1, line 16, add the paragraph --The work described herein was supported in part by grants from the National Institutes of Health (NIH), including AI-00408, AI-08917, CA-04681, and CA-16858. The United States Government has certain rights in the invention.--

Column 1, line 19, delete "1.".

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PATENT NO. 5,807,715

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**UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION**

PATENT NO : 5,807,715

DATED : September 15, 1998

INVENTOR(S): S.L. Morrison, Herzenberg, L.A., and Oi, V.T.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 1, line 41, delete "2.". .

Column 1, line 61, after "functional", add --,--; after "assembled", add --,--.

Column 1, line 66, delete "mouse-" and replace with --mouse:-

Column 1, line 67, delete ":".

Column 3, line 26, delete "prepar" and replace with --prepara--.

Column 3, line 32, delete "CDNA" and replace with --cDNA--.

Column 4, line 45, delete "CDNA" and replace with --cDNA--.

Column 4, line 52, delete "CDNA" and replace with --cDNA--.

Column 4, line 59, delete "CDNA" and replace with --cDNA--.

Column 4, line 65, delete "Joining" and replace with --joining--.

Column 8, line 2, after "immunization", add --,--.

Column 8, line 21, delete "V<sub>H</sub>" and replace with --V<sub>H</sub>--.

Column 8, line 22, delete "V<sub>K</sub>" and replace with --V<sub>K</sub>-- (Greek letter kappa subscripted).

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PATENT NO : 5,807,715

DATED : September 15, 1998

INVENTOR(S) : S.L. Morrison, Herzenberg, L.A., and Oi, V.T.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 8, line 24, delete "VH" and replace with --V<sub>H</sub>--.

Column 8, line 29, delete "V<sub>K</sub>" and replace with --V<sub>K</sub>-- (Greek letter kappa subscripted).

Column 8, line 31, delete "J<sub>K</sub>" and replace with --J<sub>K</sub>-- (Greek letter kappa subscripted); delete "C<sub>K</sub>" and replace with --C<sub>K</sub>-- (Greek letter kappa subscripted).

Column 9, line 9, delete "Five" and replace with --Fine--; delete "Chamicals" and replace with --Chemicals--.

Column 9, line 19, delete "VH-VL" and replace with --V<sub>H</sub>-V<sub>L</sub>--.

Column 9, line 57, delete "H2L2" and replace with --H<sub>2</sub>L<sub>2</sub>--.

Column 9, line 67, delete "K" and replace with --K--; delete "antiödies" and replace with --antibodies--.

Column 10, line 5, after "expected" add --,--.

Column 10, line 10, delete "VH" and replace with --V<sub>H</sub>--; delete "V<sub>K</sub>" and replace with --V<sub>K</sub>-- (Greek letter kappa subscripted).

Column 10, line 14, delete "mouse: human" and replace with --mouse:human--.

Column 10, line 22, delete "VH" and replace with --V<sub>H</sub>--; delete "V<sub>K</sub>" and replace with --V<sub>K</sub>-- (Greek letter kappa subscripted).

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## CERTIFICATE OF CORRECTION

PATENT NO : 5,807,715

DATED : September 15, 1998

INVENTOR(S): S.L. Morrison, Herzenberg, L.A., and Oi, V.T.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 10, line 36, delete "Mr" and replace with --M<sub>r</sub>--.

Column 10, line 42, delete "Mr" and replace with --M<sub>r</sub>--.

Column 10, line 54, delete "hybri-doma-" and replace with --hybridoma--.

Column 11, line 5, delete "V<sub>k</sub>" and replace with --V<sub>κ</sub>-- (Greek letter kappa subscripted).

Column 11, line 10, delete "mouse: human" and replace with --mouse:human--.

Column 11, line 21, delete "use" and replace with --used--.

Column 11, line 35, delete "IgG<sub>1</sub>, IgG<sub>2</sub>, IgG<sub>3</sub>, IgG<sub>4</sub>, rabbit IgG and mouse IgG<sub>3</sub>" and replace with --IgG1, IgG2, IgG3, IgG4, rabbit IgG and mouse IgG3--.

Column 11, line 37, delete "(delta)" and replace with --Δ-- (Greek letter capital delta).

Column 11, line 41, delete "V<sub>k</sub>" and replace with --V<sub>κ</sub>-- (Greek letter kappa subscripted).

Column 11, line 43, after "Ann" add ---.

Column 11, line 44, delete "V<sub>k</sub>" and replace with --V<sub>κ</sub>-- (Greek letter kappa subscripted).

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DATED : September 15, 1998

INVENTOR(S): S.L. Morrison, Herzenberg, L.A., and Oi, V.T.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 11, line 60, delete "pure, >95%" and replace with -- pure (>95%)--.

Column 11, line 63, delete "mouse-human" and replace with -- mouse:human--.

Column 11, line 64, delete "IgG<sub>3</sub>" and replace with -- IgG3 --.

Column 12, line 3, delete "IgG<sub>1</sub>" and replace with -- IgG1 --.

Column 12, line 10, delete "affinity purified" and replace with -- affinity-purified --.

Column 12, line 22, delete "labelling" and replace with -- labeling --.

Column 12, line 26, delete "pp." and replace with -- p --.

Column 12, line 31, after "Kornfeld" add --,--.

Column 12, line 32, delete "Wigzell Proc," and replace with -- Wigzell, Proc. --.

Column 12, line 33, after "et al." add --,--.

Column 12, line 42, delete "IgG<sub>1</sub>-IgG<sub>2a</sub>" and replace with -- IgG1-IgG2a --.

Column 12, line 64, delete "IgG<sub>1</sub>" and replace with -- IgG1 --; delete "IgG<sub>2a</sub>" and replace with -- IgG2a --.

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DATED : September 15, 1998

INVENTOR(S): S.L. Morrison, Herzenberg, L.A., and Oi, V.T.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 12, line 65, delete "IgG<sub>2a</sub>" and replace with --IgG2a--;  
delete "IgG<sub>1</sub>" and replace with --IgG1--.

Column 13, line 4, delete "T<sub>4</sub>" and replace with --T4--.

Column 13, line 43, after "Gilbert" add --,--.

Column 13, line 65, delete "Dangi" and replace with --Dangi--

Column 14, line 24, delete "bateria" and replace with --  
bacteria--.

Column 14, line 41, delete "C." and replace with --C--.

Column 14, line 53, delete "labelled" and replace with --  
labeled--.

Column 15, line 5, delete "IgG<sub>1</sub>" and replace with --IgG1--;  
delete "IgG<sub>2a</sub>" and replace with --IgG2a--.

Column 15, line 25, delete "pHGX1C<sub>v2</sub>aB" and replace with --  
pHGX1C<sub>v1</sub>B--.

Column 15, line 27, delete "Trp<sup>+</sup>" and replace with --TRP<sup>+</sup>--.

Column 15, line 39, delete "Trp<sup>+</sup>" and replace with --TRP<sup>+</sup>--.

Column 15, line 44, delete "IgG<sub>1</sub>" and replace with --IgG1--.

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DATED : September 15, 1998

INVENTOR(S) : S.L. Morrison, Herzenberg, L.A., and Oi, V.T.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 15, line 45, delete "IgG<sub>2a</sub>" and replace with --IgG2a--

Column 15, line 49, delete "IgG<sub>2a</sub>" and replace with --IgG2a--

Column 15, line 50, delete "IgG<sub>1</sub>" and replace with --IgG1--.

Column 15, line 46, delete "-7" and replace with --7--.

Column 16, line 2, delete "IgG<sub>1</sub>" and replace with --IgG1--.

Column 16, line 3, delete "IgG<sub>2a</sub>" and replace with --IgG2a--.

Column 16, line 18, delete "Mr" and replace with --M<sub>r</sub>--.

Column 16, line 29, delete "are" and replace with --is--;  
delete "IgG<sub>1</sub>" and replace with --IgG1--.

Column 16, line 30, delete "IgG<sub>2a</sub>" and replace with --IgG2a--

Column 16, line 44, delete "IgG<sub>2a</sub>" and replace with --IgG2a--

Column 17, line 63 (claim 7), delete "P<sub>3</sub>" and replace with --P3--.

Column 18, line 57 (claim 17), delete "P<sub>3</sub>" and replace with --P3--.

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## UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO : 5,807,715

DATED : September 15, 1998

INVENTOR(S) : S.L. Morrison, Herzenberg, L.A., and Oi, V.T.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 19, line 33 (claim 27), delete "P<sub>3</sub>" and replace with --P3--.

Column 20, line 50 (claim 41), delete "39" and replace with -37--.

Column 20, line 52 (claim 41), delete "are".

Column 20, line 53 (claim 41), delete "are".

Column 20, line 58 (claim 42), delete "are".

Column 20, line 59 (claim 42), delete "are".

Column 21, line 13, shift line beginning with "express" to left margin.

Column 21, line 14, shift line beginning with "specifically" to left margin.

Column 21, line 29 (claim 48), delete "arc" and replace with --are--.

Column 22, line 43 (claim 59), delete "arc" and replace with --are--.

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PATENT NO. : 5,807,715  
DATED : September 15, 1998  
INVENTOR(S) : S.L. Morrison, Herzenberg, L.A. and Oi, V.T.

Page 1 of 4

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title page, Item [54], and Column 1, lines 2 and 5,

Delete "LYMPHOCYTE" and replace with -- LYMPHOCYTIC --; after "IMMUNOGLOBULIN"; add -- AND FRAGMENTS --.

Item [75], Inventors, delete "Scarsdale, N.Y." and replace with -- Los Angeles --; delete "Menlo Park" and replace with -- Mountain View --; delete "both" and replace with -- all --.

Item [56], in **References Cited**, after "Seno et al 1983 Nucleic", delete "Acid" and replace with -- Acids --; after "Research 11 (3)", delete ";" and replace with -- : --; and after "Dolby et al 1980 PNAS 77 (10)" add -- : --.

Column 1,

Line 16, add the paragraph -- The work described herein was supported in part by grants from the National Institutes of Health (NIH), including AI-00408, AI-08917, CA-04681, and CA-16858. The United States Government has certain rights in the invention. --

Line 19, delete "1.".

Line 41, delete "2.".

Line 61, after "functional", add -- , --; after "assembled", add -- , --.

Line 66, delete "mouse-" and replace with -- mouse: --.

Line 67, delete ":".

Column 3,

Line 26, delete "prepar" and replace with -- prepara --.

Line 32, delete "CDNA" and replace with -- cDNA --.

Column 4,

Line 45, delete "CDNA" and replace with -- cDNA --.

Line 52, delete "CDNA" and replace with -- cDNA --.

Line 59, delete "CDNA" and replace with -- cDNA --.

Line 65, delete "Joining" and replace with -- joining --.

Column 8,

Line 2, after "immunization", add -- , --.

Line 21, delete "VH" and replace with -- V<sub>H</sub> --.

Line 22, delete "V<sub>K</sub>" and replace with -- V<sub>K</sub> --.

Line 24, delete "VH" and replace with -- V<sub>H</sub> --.

Line 29, delete "V<sub>K</sub>" and replace with -- V<sub>K</sub> --.

Line 31, delete "J<sub>K</sub>" and replace with -- J<sub>K</sub> --; delete "C<sub>K</sub>" and replace with -- C<sub>K</sub> --.

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UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION

PATENT NO. : 5,807,715  
DATED : September 15, 1998  
INVENTOR(S) : S.L. Morrison, Herzenberg, L.A. and Oi, V.T.

Page 2 of 4

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 9.

Line 9, delete "Five" and replace with -- Fine --; delete "Chamicals" and replace with -- Chemicals --.  
Line 19, delete "VH-VL" and replace with --  $V_H$ - $V_L$  --.  
Line 57, delete "H2L2" and replace with --  $H_2L_2$  --.  
Line 67, delete "K" and replace with --  $K$  --; delete "antodies" and replace with -- antibodies --.

Column 10.

Line 5, after "expected" add -- , --.  
Line 10, delete "VH" and replace with --  $V_H$  --; delete "V $\kappa$ " and replace with --  $V_\kappa$  --.  
Line 14, delete "mouse: human" and replace with -- mouse:human --.  
Line 22, delete "VH" and replace with --  $V_H$  --; delete "V $\kappa$ " and replace with --  $V_\kappa$  --.  
Line 36, delete "Mr" and replace with --  $M_r$  --.  
Line 42, delete "Mr" and replace with --  $M_r$  --.  
Line 54, delete "hybri-doma-" and replace with -- hybridoma --.

Column 11.

Line 5, delete "V $\kappa$ " and replace with --  $V_\kappa$  --.  
Line 10, delete "mouse: human" and replace with -- mouse:human --.  
Line 21, delete "use" and replace with -- used --.  
Line 35, delete "IgG<sub>1</sub>, IgG<sub>2</sub>, IgG<sub>3</sub>, IgG<sub>4</sub>, rabbit IgG and mouse IgG<sub>3</sub>" and replace with -- IgG<sub>1</sub>, IgG<sub>2</sub>, IgG<sub>3</sub>, IgG<sub>4</sub>, rabbit IgG and mouse IgG<sub>3</sub> --.  
Line 37, delete "(delta)" and replace with --  $\Delta$  --.  
Line 41, delete "V $\kappa$ " and replace with --  $V_\kappa$  --.  
Line 43, after "Ann" add -- . --.  
Line 44, delete "V $\kappa$ " and replace with --  $V_\kappa$  --.  
Line 60, delete "pure, >95%" and replace with -- pure (>95%) --.  
Line 63, delete "mouse-human" and replace with -- mouse:human --.  
Line 64, delete "IgG<sub>3</sub>" and replace with -- IgG<sub>3</sub> --.

Column 12.

Line 3, delete "IgG<sub>1</sub>" and replace with -- IgG<sub>1</sub> --.  
Line 10, delete "affinity purified" and replace with -- affinity-purified --.  
Line 22, delete "labelling" and replace with -- labeling --.  
Line 26, delete "pp." and replace with -- p. --.  
Line 31, after "Kornfeld" add -- , --.  
Line 32, delete "Wigzell Proc," and replace with -- Wigzell, Proc. --.  
Line 33, after "et al." add -- , --.  
Line 42, delete "IgG<sub>1</sub>-IgG<sub>2a</sub>" and replace with -- IgG<sub>1</sub>-IgG<sub>2a</sub> --.

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UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION

PATENT NO. : 5,807,715  
DATED : September 15, 1998  
INVENTOR(S) : S.L. Morrison, Herzenberg, L.A. and Oi, V.T.

Page 3 of 4

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 12 cont'd.

Line 64, delete "IgG<sub>1</sub>" and replace with -- IgG1 --; delete "IgG<sub>2a</sub>" and replace with -- IgG<sub>2a</sub> --.  
Line 65, delete "IgG<sub>2a</sub>" and replace with -- IgG<sub>2a</sub> --; delete "IgG<sub>1</sub>" and replace with -- IgG1--.

Column 13.

Line 4, delete "T<sub>4</sub>" and replace with -- T4 --.  
Line 43, after "Gilbert" add -- , --.  
Line 65, delete "Dangi" and replace with -- Dangl --

Column 14.

Line 24, delete "bateria" and replace with -- bacteria --.  
Line 41, delete "C." and replace with -- C --.  
Line 53, delete "labelled" and replace with -- labeled --.

Column 15.

Line 5, delete "IgG<sub>1</sub>" and replace with -- IgG1 --; delete "IgG<sub>2a</sub>" and replace with -- IgG<sub>2a</sub> --.  
Line 25, delete "pHGX1C<sub>γ2a</sub>B" and replace with -- pHGX1C<sub>γ1</sub>B --.  
Line 27, delete "Trp<sup>+</sup>" and replace with -- TRP<sup>+</sup> --.  
Line 39, delete "Trp<sup>+</sup>" and replace with -- TRP<sup>+</sup> --.  
Line 44, delete "IgG<sub>1</sub>" and replace with -- IgG1 --.  
Line 45, delete "IgG<sub>2a</sub>" and replace with -- IgG2a --.  
Line 46, delete "-7" and replace with -- <sup>-7</sup> --.  
Line 49, delete "IgG<sub>2a</sub>" and replace with -- IgG2a --.  
Line 50, delete "IgG<sub>1</sub>" and replace with -- IgG1 --.

Column 16.

Line 2, delete "IgG<sub>1</sub>" and replace with -- IgG1 --.  
Line 3, delete "IgG<sub>2a</sub>" and replace with -- IgG2a --.  
Line 18, delete "Mr" and replace with -- M<sub>r</sub> --.  
Line 29, delete "are" and replace with -- is --; delete "IgG<sub>1</sub>" and replace with -- IgG1 --.  
Line 30, delete "IgG<sub>2a</sub>" and replace with -- IgG2a --.  
Line 44, delete "IgG<sub>2a</sub>" and replace with -- IgG2a --.

Column 17.

Line 63, delete "P<sub>3</sub>" and replace with -- P3 --.

UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION

PATENT NO. : 5,807,715  
DATED : September 15, 1998  
INVENTOR(S) : S.L. Morrison, Herzenberg, L.A., and Oi, V.T.

Page 4 of 4

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 18,

Line 57, delete "P<sub>3</sub>" and replace with -- P3 --.

Column 19,

Line 33, delete "P<sub>3</sub>" and replace with -- P3 --.

Column 20,

Line 50, delete "39" and replace with -- 37 --.

Line 52, delete "are".

Line 53, delete "are".

Line 58, delete "are".

Line 59, delete "are".

Column 21,

Line 13, shift line beginning with "express" to left margin.

Line 14, shift line beginning with "specifically" to left margin.

Line 29, delete "arc" and replace with -- are --.

Column 22,

Line 43, delete "arc" and replace with -- are --.



Attest:

Signed and Sealed this

Ninth Day of July, 2002

JAMES E. ROGAN

Director of the United States Patent and Trademark Office

Attesting Officer



UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 5,807,715  
DATED : September 15, 1998  
INVENTOR(S) : S.L. Morrison, Herzenberg, L.A. and Oi, V.T.

Page 1 of 5

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title page, Item [54] and Column 1, Lines 1 and 5,

Item [54], delete "LYMPHOCYTE" and replace with -- LYMPHOCYTIC --; after "IMMUNOGLOBULIN", add -- AND FRAGMENTS --.

Item [75], Inventors, delete "Scarsdale, N.Y." and replace with -- Los Angeles --; delete "Menlo Park" and replace with -- Mountain View --; delete "both" and replace with -- all --.

Item [73], Assignee, delete "Assignee" and replace with -- Assignees --; after "Calif." add -- , and The Trustees of Columbia University, New York, N.Y. --.

Item [56], References Cited, after "Seno, et al 1983 Nucleic", delete "Acid" and replace with -- Acids --; after "Research 11 (3)", delete ";" and replace with -- . --; and after "Dolby et al 1980 PNAS 77 (10)" add -- : --.

Column 1,

Line 16, add the paragraph -- The work described herein was supported in part by grants from the National Institutes of Health (NIH), including AI-00408, AI-08917, CA-04681, and CA-16858. The United States Government has certain rights in the invention. --

Line 19, delete "1.".

Line 41, delete "2.".

Line 61, after "functional", add -- , --; after "assembled", add -- , --.

Line 66, delete "mouse-" and replace with -- mouse: --

Line 67, delete ":".

Column 3,

Line 26, delete "prepar" and replace with -- prepara --.

Line 32, delete "CDNA" and replace with -- cDNA --.

Column 4,

Line 45, delete "CDNA" and replace with -- cDNA --.

Line 52, delete "CDNA" and replace with -- cDNA --.

Line 59, delete "CDNA" and replace with -- cDNA --.

Line 65, delete "Joining" and replace with -- joining --..

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UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION

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DATED : September 15, 1998  
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Page 2 of 5

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 8.

Line 2, after "immunization", add -- , --.  
Line 21, delete "VH" and replace with --  $V_H$  --.  
Line 22, delete "V $\kappa$ " and replace with --  $V_\kappa$  -- (Greek letter kappa subscripted).  
Line 24, delete "VH" and replace with --  $V_H$  --.  
Line 29, delete "V $\kappa$ " and replace with --  $V_\kappa$  -- (Greek letter kappa subscripted).  
Line 31, delete "J $\kappa$ " and replace with --  $J_\kappa$  -- (Greek letter kappa subscripted); delete "C $\kappa$ " and replace with --  $C_\kappa$  --. (Greek letter kappa subscripted).

Column 9.

Line 9, delete "Five" and replace with -- Fine --; delete "Chamicals" and replace with -- Chemicals --.  
Line 19, delete "VH-VL" and replace with --  $V_H$ - $V_L$  --.  
Line 57, delete "H2L2" and replace with --  $H_2$ L<sub>2</sub> --.  
Line 67, delete "K" and replace with --  $\kappa$  --; delete "antiodies" and replace with -- antibodies --.

Column 10.

Line 5, after "expected" add -- , --.  
Line 10, delete "VH" and replace with --  $V_H$  --; delete "V $\kappa$ " and replace with --  $V_\kappa$  -- (Greek letter kappa subscripted).  
Line 14, delete "mouse: human" and replace with -- mouse:human --.  
Line 22, delete "VH" and replace with --  $V_H$  --; delete "V $\kappa$ " and replace with --  $V_\kappa$  -- (Greek letter kappa subscripted).  
Line 36, delete "Mr" and replace with --  $M_r$  --.  
Line 42, delete "Mr" and replace with --  $M_r$  --.  
Line 54, delete "hybri-doma-" and replace with -- hybridoma --.

CERTIFICATE OF CORRECTION

UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION

PATENT NO. : 5,807,715  
DATED : September 15, 1998  
INVENTOR(S) : S.L. Morrison, Herzenberg, L.A. and Oi, V.T.

Page 3 of 5

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 11.

Line 5, delete "V<sub>K</sub>" and replace with -- V<sub>K</sub> -- (Greek letter kappa subscripted).  
Line 10, delete "mouse: human" and replace with -- mouse:human --.  
Line 21, delete "use" and replace with -- used --.  
Line 35, delete "IgG<sub>1</sub>, IgG<sub>2</sub>, IgG<sub>3</sub>, IgG<sub>4</sub>, rabbit IgG and mouse IgG<sub>3</sub>" and replace with -- IgG<sub>1</sub>, IgG<sub>2</sub>, IgG<sub>3</sub>, IgG<sub>4</sub>, rabbit IgG and mouse IgG<sub>3</sub> --.  
Line 37, delete "(delta)" and replace with -- Δ -- (Greek letter capital delta).  
Line 41, delete "VK" and replace with -- V<sub>K</sub> -- (Greek letter kappa subscripted).  
Line 43, after "Ann" add -- . --.  
Line 44, delete "V<sub>K</sub>" and replace with -- V<sub>K</sub> -- (Greek letter kappa subscripted).  
Line 60, delete "pure, >95%" and replace with -- pure (>95%) --.  
Line 63, delete "mouse-human" and replace with -- mouse:human --.  
Line 64, delete "IgG<sub>3</sub>" and replace with -- IgG<sub>3</sub> --.

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Column 12.

Line 3, delete "IgG<sub>1</sub>" and replace with -- IgG<sub>1</sub> --.  
Line 10, delete "affinity purified" and replace with -- affinity-purified --.  
Line 22, delete "labelling" and replace with -- labeling --.  
Line 26, delete "pp." and replace with -- p. --.  
Line 31, after "Kornfeld" add -- , --.  
Line 32, delete "Wigzell Proc," and replace with -- Wigzell, Proc. --.  
Line 33, after "et al." add -- , --.  
Line 42, delete "IgG<sub>1</sub>-IgG<sub>2a</sub>" and replace with -- IgG<sub>1</sub>-IgG<sub>2a</sub> --.  
Line 64, delete "IgG<sub>1</sub>" and replace with -- IgG<sub>1</sub> --; delete "IgG<sub>2a</sub>" and replace with -- IgG<sub>2a</sub> --.  
Line 65, delete "IgG<sub>2a</sub>" and replace with -- IgG<sub>2a</sub> --; delete "IgG<sub>1</sub>" and replace with -- IgG<sub>1</sub> --.

Column 13.

Line 4, delete "T<sub>4</sub>" and replace with -- T4 --.  
Line 43, after "Gilbert" add -- , --.  
Line 65, delete "Dangi" and replace with -- Dangl --.

Column 14.

Line 24, delete "bateria" and replace with -- bacteria --.  
Line 41, delete "C." and replace with -- C --.  
Line 53, delete "labelled" and replace with -- labeled --.

UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION

PATENT NO. : 5,807,715  
DATED : September 15, 1998  
INVENTOR(S) : S.L. Morrison, Herzenberg, L.A. and Oi, V.T.

Page 4 of 5

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 15.

Line 5, delete "IgG<sub>1</sub>" and replace with -- IgG1 --; delete "IgG<sub>2a</sub>" and replace with -- IgG2a --.  
Line 25, delete "pHGXC<sub>γ2</sub>aB" and replace with -- pHGXC<sub>γ1</sub>B --.  
Line 27, delete "Trp." and replace with -- TRP<sup>+</sup> --.  
Line 39, delete "Trp." and replace with -- TRP<sup>+</sup> --.  
Line 44, delete "IgG<sub>1</sub>" and replace with -- IgG1 --.  
Line 45, delete "IgG<sub>2a</sub>" and replace with -- IgG2a --.  
Line 49, delete "IgG<sub>2a</sub>" and replace with -- IgG2a --.  
Line 50, delete "IgG<sub>1</sub>" and replace with -- IgG1 --.  
Line 46, delete "-7" and replace with -- <sup>7</sup> --.

Column 16.

Line 2, delete "IgG<sub>1</sub>" and replace with -- IgG1 --.  
Line 3, delete "IgG<sub>2a</sub>" and replace with -- IgG2a --.  
Line 18, delete "Mr" and replace with -- M<sub>r</sub> --.  
Line 29, delete "are" and replace with -- is --; delete "IgG<sub>1</sub>" and replace with -- IgG1 --.  
Line 30, delete "IgG<sub>2a</sub>" and replace with -- IgG2a --.  
Line 44, delete "IgG<sub>2a</sub>" and replace with -- IgG2a --.

Column 17.

Line 63, delete "P<sub>3</sub>" and replace with -- P3 --.

Column 18.

Line 57, delete "P<sub>3</sub>" and replace with -- P3 --.

Column 19.

Line 33, delete "P<sub>3</sub>" and replace with -- P3 --.

Column 20.

Line 50, delete "39" and replace with -- 37 --.  
Line 52, delete "are".  
Line 53, delete "are".  
Line 58, delete "are".  
Line 59, delete "are"

SEARCHED, SERIALIZED, INDEXED, FILED

UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION

PATENT NO. : 5,807,715  
DATED : September 15, 1998  
INVENTOR(S) : S.L. Morrison, Herzenberg, L.A. and Oi, V.T.

Page 5 of 5

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 21.

Line 13, shift line beginning with "express" to left margin.  
Line 14, shift line beginning with "specifically" to left margin.  
Line 29, delete "arc" and replace with -- are --.

Column 22.

Line 43, delete "arc" and replace with -- are --.

This certificate supersedes the Certificate of Correction issued July 9, 2002.



Attest:

*Virginia Tolbert*

Attesting Officer

Signed and Sealed this

Sixth Day of August, 2002

A handwritten signature in black ink, appearing to read "James E. Rogan".

JAMES E. ROGAN  
Director of the United States Patent and Trademark Office



LEYDI CIT & MAYER  
Attorne, at Law  
350 Cambridge Ave., Suite 200  
Palo Alto, CA 94306

ASSIGNMENT

Whereas I, SHERIE L. MORRISON, of 31 Claremont Road, Scarsdale, New York, 10583, along with LEONARD A. HERZENBERG and VERNON T. OI of 876 Cedro Way, Stanford, California, 94305, and 316 Waverly, #3, Menlo Park, California, 94025, respectively, have invented certain new and useful improvements in:

CHIMERIC RECEPTORS BY DNA SPLICING AND EXPRESSION

for which invention I have executed an application for Letters Patent of the United States on October 17, 1987, and which application may be identified in the United States Patent and Trademark Office as:

Serial No. 090,669, Filed August 28, 1987; and,

Whereas, THE TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK, a corporation of the State of New York, having a place of business at Broadway and West 116th Street, New York, New York, 10027, is desirous of acquiring my entire right, title, and interest in and to said invention, said application and the letters patent to be obtained therefor:

Now, therefore, for and in consideration of One Dollar and other good and valuable considerations, to me in hand paid, the receipt and sufficiency whereof are hereby acknowledged, I have sold, assigned, and set over and by these presents do hereby sell, assign, and set over unto the said:

THE TRUSTEES OF COLUMBIA UNIVERSITY  
IN THE CITY OF NEW YORK

and said assignee's legal representatives, successors and assigns, my entire right, title, and interest in and to said invention, said application, and the letters patent, both foreign and domestic, that may or shall issue thereon; and I do hereby authorize and request the Commissioner of Patents and Trademarks to issue said Letters Patent to the above-mentioned assignee agreeably with the terms of this assignment.

I hereby authorize the above-mentioned assignee or its legal representative to insert in this instrument the filing date and serial number of our said application or any other information that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

Upon said consideration, I convey to said assignee the right to make application in its own behalf for protection of said invention in countries foreign to the United States and where expedient to claim under the International Convention or other international arrangement for any such application the date of the said United States application (or other application if any there be) in priority to other applications; and I do hereby covenant and agree with the said assignee

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that I will not execute any writing or do any act whatsoever conflicting with these presents, and that I will at any time upon request, without further or additional consideration, but at the expense of the said assignee, execute such additional assignments and other writings and do such additional acts as said assignee may deem necessary or desirable to perfect the assignee's enjoyment of this grant, and render all necessary assistance in making application for and obtaining original, divisional, renewal, reissued or extended Letters Patent of the United States or of any and all foreign countries on said invention, and in enforcing any rights or choses in action accruing as a result of such applications or patents, by giving testimony in any proceedings or transactions involving such applications or patents, and by executing preliminary statements and other affidavits, it being understood that the foregoing covenant and agreement shall bind, and inure to the benefit of, the assigns and legal representatives of both parties.

Date: Oct 17, 1987

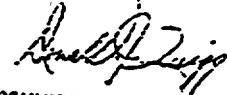
By: Sherie L. Morrison  
Sherie L. Morrison

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DONALD P. ZAPP

COMMISSIONER OF PATENTS  
AND TRADEMARKS OFFICE

LEYDIG, VOIT & MAYER  
Attorneys at Law  
350 Cambridge Ave., Suite 200  
Palo Alto, CA 94306

## ASSIGNMENT

Whereas We, LEONARD A. HERZENBERG and VERNON T. OI, of 876 Cedro Way, Stanford, California, 94305, and 316 Waverly, #3, Menlo Park, California, 94025, along with SHERIE L. MORRISON of 31 Claremont Road, Scarsdale, New York, 10583, respectively, have invented certain new and useful improvements in:

## CHIMERIC RECEPTORS BY DNA SPLICING AND EXPRESSION

for which invention we have executed an application for Letters Patent of the United States on 09/09/87 and 11/10/87, respectively, and which application may be identified in the United States Patent and Trademark Office as:

Serial No. 090.669, Filed August 28, 1987; and,

Whereas, THE BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY, a California corporation, having a principal place of business at Stanford University, Stanford, California, 94305, is desirous of acquiring our entire right, title, and interest in and to said invention, said application and the letters patent to be obtained therefor:

Now, therefore, for and in consideration of One Dollar and other good and valuable considerations, to us in hand paid, the receipt and sufficiency whereof are hereby acknowledged, we have sold, assigned, and set over and by these presents do hereby sell, assign, and set over unto the said:

THE BOARD OF TRUSTEES OF THE LELAND STANFORD JR. UNIVERSITY

and said assignee's legal representatives, successors and assigns, our entire right, title, and interest in and to said invention, said application, and the letters patent, both foreign and domestic, that may or shall issue thereon; and we do hereby authorize and request the Commissioner of Patents and Trademarks to issue said Letters Patent to the above-mentioned assignee agreeably with the terms of this assignment.

We hereby authorize the above-mentioned assignee or its legal representative to insert in this instrument the filing date and serial number of our said application or any other information that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

Upon said consideration, we convey to said assignee the right to make application in its own behalf for protection of said invention in countries foreign to the United States and where expedient to claim under the International Convention or other international arrangement for any such application the date of the said United States application (or other application if any there be) in priority to other applications; and We do hereby covenant and agree with the said assignee that we will not execute any writing or do any act whatsoever conflict-

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ting with these presents, and that we will at any time upon request, without further or additional consideration, but at the expense of the said assignee, execute such additional assignments and other writings and do such additional acts as said assignee may deem necessary or desirable to perfect the assignee's enjoyment of this grant, and render all necessary assistance in making application for and obtaining original, divisional, renewal, reissued or extended Letters Patent of the United States or of any and all foreign countries on said invention, and in enforcing any rights or choses in action accruing as a result of such applications or patents, by giving testimony in any proceedings or transactions involving such applications or patents, and by executing preliminary statements and other affidavits, it being understood that the foregoing covenant and agreement shall bind, and inure to the benefit of, the assigns and legal representatives of both parties.

Date: 9/9/87

By: L.A. Herzenberg  
Leonard A. Herzenberg

Date: Nov. 12, 1987

By: Vernon T. Oi  
Vernon T. Oi

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ASSIGNOR: 001 MORRISON, SHERIE L.

DOC DATE: 10/17/87

RECORDATION DATE: 11/16/87 NUMBER OF PAGES 002 REEL/FRAME 4830/0958

DIGEST: ASSIGNMENT OF ASSIGNORS INTEREST

ASSIGNEE: 501 TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK,  
1200 BROADWAY AND WEST 116TH STREET, NEW YORK, NEW YORK,  
10027, A CORP. OF NEW YORK

SERIAL NUMBER 7-090669 FILING DATE 08/28/87  
PATENT NUMBER ISSUE DATE 00/00/00

TITLE OF INVENTION: CHIMERIC RECEPTORS BY DNA SPLICING AND EXPRESSION

INVENTOR: 001 MORRISON, SHERIE L.

INVENTOR: 002 HERZENBERG, LEONARD A.

INVENTOR: 003 01, VERNON T.



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AND APPEARS IN THE OFFICE'S RECORDS AS SHOWN:

ASSIGNOR: 001 HERZENBERG, LEONARD A.  
ASSIGNOR: 002 01, VERNON T.

DOC DATE: 09/09/87  
DOC DATE: 11/12/87

RECORDATION DATE: 11/16/87 NUMBER OF PAGES 002 REEL/FRAME 4830/0956

DIGEST: ASSIGNMENT OF ASSIGNEE'S INTEREST

ASSIGNEE: 501 BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY, THE, STANFORD UNIVERSITY, STANFORD, CA. 94305, A CA. C ORP.

SERIAL NUMBER 7-090669 FILING DATE 08/28/87  
PATENT NUMBER ISSUE DATE 00/00/00

TITLE OF INVENTION: CHIMERIC RECEPTORS BY DNA SPLICING AND EXPRESSION

INVENTOR: 001 MORRISON, SHERIE L.  
INVENTOR: 002 HERZENBERG, LEONARD A.  
INVENTOR: 003 01, VERNON T.

100-200-300-400-500-600-700-800-900

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**PART B—ISSUE FEE TRANSMITTAL**

Complete and mail this form, together with applicable fees, to:

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Washington, D.C. 20231

**MAILING INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE. Blocks 1 through 4 should be completed where appropriate. All further correspondence including the Issue Fee Receipt, the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

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NEW YORK NY 10020

Note: The certificate of mailing below can only be used for domestic mailings of the Issue Fee Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing.

**Certificate of Mailing**

I hereby certify that this Issue Fee Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Box Issue Fee address above on the date indicated below.

*MARTHA D. JOHNSON* (Depositor's name)  
*Mullowney* (Signature)  
*MAY 18, 1998* (Date)

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
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First Named U87266,154 06/27/94 030 REEVES, J 1642 02/18/98  
Applicant

TITLE OF INVENTION  MORRISON, SHERIE L.

METHODS FOR PRODUCING FUNCTIONAL IMMUNOGLOBIN, INCLUDING CHIMERIC IMMUNOGLOBIN, IN TRANSFORMED MAMMALIAN LYMPHOCYTIC CELLS (AS AMENDED)

ATTY'S DOCKET NO. -	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEES DUE	DATE DUE
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1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). Use of PTO form(s) and Customer Number are recommended, but not required. <input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached. <input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47) attached. <input type="checkbox"/>	2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.	UTILITY NO. \$1320.00 05/18/98 1. Fish & Neave 2. Vicki S. Veenker 3. Edward F. Mullowney
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3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type) PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the PTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.	4a. The following fees are enclosed (make check payable to Commissioner of Patents and Trademarks): <input checked="" type="checkbox"/> Issue Fee <input checked="" type="checkbox"/> Advance Order - # of Copies 15
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(A) NAME OF ASSIGNEE * The Board of Trustees of The Leland Stanford Junior University (B) RESIDENCE: (CITY & STATE OR COUNTRY) Stanford, California Please check the appropriate assignee category indicated below (will not be printed on the patent) <input type="checkbox"/> individual <input checked="" type="checkbox"/> corporation or other private group entity <input type="checkbox"/> government	4b. The following fees or deficiency in these fees should be charged to: DEPOSIT ACCOUNT NUMBER 06-1075 (ENCLOSE AN EXTRA COPY OF THIS FORM) <input type="checkbox"/> Issue Fee <input type="checkbox"/> Advance Order - # of Copies
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(Authorized Signature) *Vicki S. Veenker* (Date) 34,269 5/18/98

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Additional Assignee Name and Residence Data to be Printed on the Patent

(A) Name of Assignee    The Trustees of Columbia University

(B) Residence: (City & State or Country)

New York, New York

Individual       Corporation or other private group entity       Government

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